

The opinion in support of the decision being entered today was **not** written
for publication and is **not** binding precedent of the Board.

Paper No. 31

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte RICHARD P. BRAULT and JEFFREY S. HOLLY

Appeal No. 2000-2180
Application No. 08/919,866

ON BRIEF

Before ABRAMS, STAAB, and BAHR, Administrative Patent Judges.
ABRAMS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 1, 5-8 and
26-39, which are all of the claims pending in this application.

We REVERSE.

BACKGROUND

The appellants' invention relates to a cutting tool having a turntable supported by a roller bearing structure. An understanding of the invention can be derived from a reading of exemplary claim 1, which appears in the appendix to the Brief.

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

Herzog	3,289,713	Dec. 6, 1966
Barton	3,971,274	Jul. 27, 1976
Bennett	3,998,121	Dec. 21, 1976
Fushiya <u>et al.</u> (Fushiya)	4,638,700	Jan. 27, 1987
Bando	4,981,373	Jan. 1, 1991
Sasaki <u>et al.</u> (Sasaki)	5,392,678	Feb. 28, 1995

The following rejections stand under 35 U.S.C. § 103:

- (1) Claims 1, 5, 26, 27, 30 and 35-37 on the basis of Bennett, Barton and Bando.
- (2) Claims 6, 7, 31-34, 38 and 39 on the basis of Bennett, Barton, Bando and Sasaki.
- (3) Claims 8, 28 and 29 on the basis of Bennett, Barton, Bando, Fushiya and Herzog.¹

Rather than reiterate the conflicting viewpoints advanced by the examiner and the appellants regarding the above-noted rejections, we make reference to the Answer (Paper No. 30) for the examiner's complete reasoning in support of the rejections, and to the Brief (Paper No. 29) for the appellants' arguments thereagainst.

¹This rejection was erroneously applied to claims 6, 7, 31-34, 38 and 39 in the statement of the rejection in the Answer. However, see page 4 of Paper No. 24 (the final rejection) and pages 6 and 20 of the Brief.

OPINION

In reaching our decision in this appeal, we have given careful consideration to the appellants' specification and claims, to the applied prior art references, and to the respective positions articulated by the appellants and the examiner. As a consequence of our review, we make the determinations which follow.

All three of the rejections are under 35 U.S.C. § 103. The test for obviousness is what the combined teachings of the prior art would have suggested to one of ordinary skill in the art. See, for example, In re Keller, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). In establishing a prima facie case of obviousness, it is incumbent upon the examiner to provide a reason why one of ordinary skill in the art would have been led to modify a prior art reference or to combine reference teachings to arrive at the claimed invention. See Ex parte Clapp, 227 USPQ 972, 973 (Bd. Pat. App. & Int. 1985). To this end, the requisite motivation must stem from some teaching, suggestion or inference in the prior art as a whole or from the knowledge generally available to one of ordinary skill in the art and not from the appellant's disclosure. See, for example, Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 1052, 5 USPQ2d 1434, 1439 (Fed. Cir.), cert. denied, 488 U.S. 825 (1988).

The appellants' invention provides a cutting tool or miter saw including a base having a support surface for supporting a workpiece and a turntable supported by the base

for rotation about a generally vertical axis. According to the appellants, it is important that the turntable be stable during the cutting operation, and the repetitive pivotal movement of the turntable about its axis causes wear of the engaging surfaces that support it, which can result in a loose fit that allows rocking motion of the turntable and reduces the accuracy and reliability of the saw. The appellants' invention solves these problems by providing a substantially horizontal bearing cage containing radially oriented roller bearings to support the turntable upon the base, which substantially eliminates wear on the opposed supporting surfaces while providing stable support for the turntable, and a biasing mechanism to bias the turntable toward the base, which provides added stability to the turntable. See specification, pages 1-3.

As manifested in claim 1, the invention comprises a cutting tool having a base with a workpiece support surface and a first annularly upwardly facing bearing surface, a turntable mounted for rotation about a generally vertical axis and having a workpiece support surface and a second annular downwardly facing bearing surface, a cutting unit mounted on the turntable for movement therewith, and

a roller bearing mounted on the first annular upwardly facing bearing surface and for supporting the second annular, downwardly facing bearing surface, the roller bearing supporting the turntable for rotation about the vertical axis, the roller bearing including an annular, generally planar bearing cage having therein a series of openings, and a plurality of bearing elements mounted in the openings to support the turntable on the base.

It is the examiner's view that all of the subject matter recited in claim 1 is found in Bennett, except for the roller bearing, but that it would have been obvious to one of ordinary skill in the art to replace the annular bearing ring disclosed by Bennett with roller bearing elements in a cage, in view of the teachings of Barton and Bando. The appellants provide several arguments in opposition to this conclusion, including the assertion that there would have been no suggestion to combine the references in the manner proposed by the examiner. We find ourselves in agreement with the appellants on this point. Our reasoning follows.

Bennett discloses a cutting tool comprising a base, a work supporting turntable mounted for rotation on the base about a substantially vertical axis, and a cutting unit mounted on the turntable. Interposed between the base and the turntable is an annular bearing ring 40 comprising upper and lower flat bearing surfaces (unnumbered) which engage, respectively, a cooperating downwardly facing bearing surface 40' on the turntable and an upwardly facing bearing surface (unnumbered) on the base. The bearing ring is provided with a plurality of downwardly extending extensions 42-44 to anchor it in position on the base, and with a plurality of upwardly extending lugs 46-48 which mate with a groove in the turntable, thus maintaining the established relationship between the bearing ring and the turntable while permitting the turntable to rotate (see Figures 4 and 9 and column 3, lines 16-42). The objectives of Bennett's invention include simple and

compact construction (column 1, lines 28 and 29) and relatively few parts so that the saw operates with precision while being of low cost (column 2, lines 3-6). In keeping with these objectives, Bennett describes the functions of the bearing ring as being "to provide abundant stability and also seal the movable members to keep them free of dust" (Abstract), and "[i]n addition to providing a bearing the bearing ring and accompanying structure also serves as a seal to exclude cuttings, sawdust, and dirt from the space inwardly thereof, identified in part by the opening 24" (column 3, lines 43-47). Bennett fails to disclose or teach the roller bearing arrangement recited in the appellants' claim 1.

In the Barton saw the turntable is supported for rotation about a vertical axis by means of a plurality of ball bearings 98 contained within an annular groove (unnumbered) defined by the fixed and rotatable elements of the device (see Figure 3). Other than describing the bearings as being combined thrust and journal bearings (column 3, line 51), Barton sets forth no advantages of this construction. The examiner's position appears to be that Barton would have suggested to one of ordinary skill in the art that bearings capable of handling thrust and journal loads are known to be used in place of the bearing disclosed by Bennett, which the examiner apparently believes does not have such a capability, thus opening the door for other thrust-and-journal bearings such as the roller arrangement of Bando to be used in Bennett.

Of course, the mere fact that the prior art structure could be modified does not make such a modification obvious unless the prior art suggests the desirability of doing so. See In re Gordon, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984). In the present situation, in view of the requirements in Bennett that the bearing must be simple in construction and must seal the inner space from contaminants such as sawdust, which are advantages not set forth in Barton and which appear not to be inherent therein, it is our opinion that the modification proposed by the examiner would compromise the objectives of the Bennett invention and thus would operate as a disincentive to one of ordinary skill in the art to replace the disclosed bearing ring with a ball bearing arrangement. From our perspective, the rejection is fatally defective at this point for even if one concedes, arguendo, that Bando is analogous art, we fail to perceive any teaching, suggestion or incentive which would have led one of ordinary skill in the art to replace the bearing disclosed by Bennett with a roller bearing, other than the hindsight afforded one who first views the appellants' disclosure. Insofar as the examiner's assertion that suggestion is provided by the fact that the Barton bearings provide both thrust and journal loading, it is our opinion that although not explicitly explained in the Bennett patent, one of ordinary skill in the art would have recognized that the bearing ring disclosed by Bennett also accommodates both thrust and journal loading, by virtue of the presence of both the flat surfaces of the bearing ring and the upwardly extending protrusions that are received in the

groove in the rotating element (see Figure 4). If such were not the case, lateral loads placed upon the rotating element during normal operation of the saw would cause it to move sideways, resulting in binding between it and the stationary element and thus impeding rotation. This being the case, Barton really provides no suggestion in this regard above and beyond that already evident in Bennett.

The teachings of Bennett, Barton and Bando therefore fail to establish a prima facie case of obviousness with regard to the subject matter recited in claim 1, and we will not sustain the rejection to independent claim 1 or of dependent claims 5, 26, 27 and 30.

Independent claim 35 and dependent claims 36 and 37 also stand rejected on the basis of Bennett, Barton and Bando. The requirement for a roller bearing also is present in claim 35, albeit expressed in somewhat different terms, and therefore we will not sustain the rejection of these claims for the same reasons as were expressed above with regard to claim 1.

Claim 5 adds to claim 1 the requirement that the cutting tool further include means for biasing the second bearing surface toward the first bearing surface, and claim 6 to claim 5 that the biasing means include a spring member connected between the base and the turntable. Claim 6 has been rejected as being unpatentable over the references applied against claims 1 and 5 taken further in view of Sasaki, which was cited for teaching using a spring to bias together a fixed element and a movable element. Be that

as it may, consideration of Sasaki does not overcome the problem set forth above with the combining of the three basic references, and therefore we will not sustain the rejection of dependent claim 6. The same is true for claim 7, which adds to claim 5 the requirement that the biasing means include a disk-shaped spring member, and which stands rejected on the same basis as claim 6. It also applies to claims 38 and 39, which add to the claims emanating from independent claim 35 the same spring limitations as claims 6 and 7.

Independent claim 31 also requires the roller bearing, and further includes the spring member for biasing the two surfaces together. It is rejected on the basis of the references applied against claim 1 plus Sasaki. Since Sasaki does not alleviate the shortcomings found in combining Bennett, Barton and Bando, we will not sustain the rejection of independent claim 31 or of claims 32-34, which depend therefrom. We also note in passing that Sasaki utilizes the disk-shaped spring member as part of a clamping means for preventing one element from rotating with respect to another, rather than merely as a means for biasing one element toward another.

Claim 8 depends from claim 1, and adds the requirement that the turntable work support surface have an opening and the cutting tool include a snap-in kerf plate removably connected to the turntable. The examiner has added Fushiya and Herzog to the three references cited against claim 1 with regard to the kerf plate feature. However, the additional references do not cure the problem with the basic combination applied against

claim 1, and we will not sustain the rejection of claim 8. The same holds true for claims 28 and 29, which add further features to claim 8.

SUMMARY

None of the rejections are sustained.

The decision of the examiner is reversed.

NEAL E. ABRAMS
Administrative Patent Judge

LAWRENCE J. STAAB
Administrative Patent Judge

JENNIFER D. BAHR
Administrative Patent Judge

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